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Moving Up, Feeling Down: Socioemotional Distress during the Transition to College

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Moving Up, Feeling Down: Socioemotional Distress during the Transition to College

by

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Abstract

Moving Up, Feeling Down: Socioemotional Distress during the Transition to College

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The transition from high school into college is a critical period in the life course, reflecting past history and forecasting future prospects. How this transition unfolds can influence who persists in college and who does not, as it is a time of socioemotional vulnerability as well as a foundation of the highly cumulative path through higher education. The aim of this study was to look at variation in emotional adjustment during the transition from high school into college and how relates to the match/mismatch of academic context and pathways from high school to college as well as parental support. Using data from the National Longitudinal Study of Adolescent Health (Add Health), latent growth curve and growth mixture modeling were used to estimate trajectories of emotional distress and identify basic categories of trajectories among college goers. Aspects of high school and college context and performance variables—as well as combination among them—were then used to predict the types of trajectories individual college students followed. The results revealed significant heterogeneity in how college-goers fared emotionally, with some experiencing increased depressive symptomatology and others experiences declines. Those who appeared to fare the worst emotionally during the transition to college had consistently low academic demands from high school into college and lacked support social support from their parents.

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Introduction

Globalization and economic restructuring have increased the lifelong economic returns of a college degree to historic levels (Goldin & Katz, 2008). Moreover, ample evidence across disciplines has documented that these returns extend to a range of life course outcomes, such as health, marital quality, and life expectancy (Mirowsky & Ross, 2003). These literatures help to explain why rates of college-going have reached unprecedented levels in the U.S. In the fall of 2013, a record 21.7 million students were expected to enroll in post-secondary institutions in the U.S., an increase of approximately 6.5 million since 2000 (U.S. Department of Education, 2012). As youth flood into college, however, many falter and drop out. Consequently, some youth reach for the potential long-term social and economic returns of a college degree but are not able to realize them. The transition from high school to college is likely to be critical in determining who persists in college and who does not, as it represents a time of socioemotional vulnerability as well as the foundation of the highly cumulative path through higher education. Who is likely to struggle socioemotionally during the transition to college in ways that disrupt their ultimate academic progress and the realization of the long-term returns to higher education, and why do these individuals struggle?

This study will look at variation in socioemotional adjustment during the transition from high school into college by 1) identifying who is at risk for increased depressive symptomatology during this transition to college based on the

match/mismatch of their academic setting and curricular position in high school with their college contexts and pathways, and 2) determining whether how one deals with the transition experience in general and with the high school-to-college match/mismatch in particular might depend on the social support they get from their parents. To explore these aims, latent growth curve analysis and growth mixture modeling will be applied to the portion of youth in the nationally representative sample of secondary school students from the National Longitudinal Study of Adolescent Health (Add Health) who attended college in the years immediately after leaving high school.

Although college-going receives ample public and academic attention, it is often viewed through a narrow lens. This research will expand that lens beyond economic and human capital perspectives to illustrate how the transition into college reflects and qualifies broader life course trajectories and social-institutional systems in ways that widen social inequalities in the U.S. Furthermore, the results of this study may provide a deeper understanding for and identification of who may be vulnerable to emotional distress during the college-going transition period, helping to inform policy and intervention aimed at not only enhancing access to higher education but also the completion of college degrees among diverse populations.

Literature Review

The Transition into College

The expectation to complete a college degree has expanded among adolescents in the U.S., but these expectations have risen more dramatically than actual attainment (Jacob & Wilder, 2010; Reynolds et al, 2006). This discrepancy suggests that not all adolescents who attempt a college degree will earn one. Given what we know about the importance of transitions into a new school level for youth persistence and achievement within that school level (Benner, 2011), the experience of transitioning into college is likely to play a role in whether an individual youth will finish college. Not only is such a transition a dynamic developmental period that links life course experiences across time, it also lays the groundwork for future educational pathways. In the highly cumulative educational system, where one thing builds on another, how one starts influences how one finishes (Arum, 2000).

In order to understand the potentially crucial transition into college, this experience must be situated in the broader context of adolescent experiences and the transition from adolescence into young adulthood. Shifting from high school to higher education is a key component of the transition from adolescence to young adulthood (Johnson et al, 2011). Adolescence is a time of rapid change and development, when individuals struggle to establish identity (i.e., developing a sense of who they are and where they fit in the world) and, in the process, individuate from parents and set themselves up for adulthood (Kroger, 2007). This process has socioemotional implications, as individuals develop physically, socially, and psychologically at different

rates and struggle with competing demands and expectations from peers and adults (Cavanagh et al, 2007). As young people seek to leave adolescence behind and enter adulthood, many complete high school and transition into college. Thus, they are undergoing significant changes in their personal lives while also navigating a crucial institutional system that translates their past accomplishments into future socioeconomic attainment. Their developmental trajectories and institutional pathways are, therefore, closely connected to each other, with a two-way exchange of influence (South et al, 2007; Staff & Kreager, 2008).

This two-way exchange is closely aligned with the basic focus of life course theory, which is a valuable frame for understanding the transition into college. This perspective views transitions as specific points of change in status and/or setting that act as mechanisms of deflection and intensification in general trajectories of adjustment and functioning, the concrete periods in which life course trajectories are likely to change directions (Elder, 1998; George, 1993). The transition from high school into college is indeed a concrete change in status and setting, and, as such, is likely to be a critical period in which long-term educational trajectories take new shapes, positively or negatively. It is a short-term experience embedded in a long-term trajectory, and how young people fare during this short-term experience can create stability between past histories and future prospects or instead disjunctures between them.

In socioemotional terms, how might the transition into college look? On average, individuals who go to college thrive. Within this group, however, some adolescents may experience difficulties with the transition from high school to college. The pressure of

the transition along with the demands of navigating a new social environment may lead to stress. These stressful and difficult experiences may or may not last, but regardless of their endurance, can have long term effects by influencing grade point average or coursework, for example. Overall, distress upon college-going may shape the cumulative trajectories of adolescents transitioning from high school to college.

The first aim of this study, therefore, is to highlight variation in how adolescents experience the transition into college. I use feelings of emotional distress to capture socioemotional adjustment because distress indicates difficulty and trouble during the transition.

Academic Setting and Curricular Pathways

A major tenet of life course theory is that developmental trajectories (e.g., socioemotional adjustment) unfold within the contexts of life. Contexts—whether larger institutional contexts like educational systems or proximate ecological contexts like families—provide opportunities for different experiences, place constraints on individual behavior and relationships, introduce stressors and supports, and serve as sites for cultural socialization into prevailing norms and values (Bronfenbrenner & Morris, 1998). Thus, the transition into college can be better understood by anchoring it within such institutional and ecological contexts. To begin with the institutional context, the transition into college is one piece of a sequence of institutional experiences within the educational system. Consequently, it needs to be studied in relation to how the pieces of this sequence fit together, past and present. This sequence has multiple dimensions, including the school settings and the curricular positions of young people over time.

First, one aspect of the school setting concerns the degree to which it is academically competitive—how achievement-oriented and successful are the students in a given school? School-level influences not only during the transition to college but also pre-transition may encourage or prevent individuals from realizing their educational capabilities. The courses individuals take in high school are highly influenced by the school itself (Frank et al, 2008). Individuals in more competitive high schools, therefore, are more likely to develop skills that facilitate ability to thrive in any academic setting. The effects of high school setting persist, and academic context and high school curriculum are predictive of bachelor degree completion (Adelman, 1999). Likewise, more selective colleges may generate more competitive environments that urge adolescents to stay focused in the classroom and stay motivated despite difficulties that the transition to college may present. Not being exposed to competitive and selective academic settings, on the other hand, may prevent individuals from realizing their academic capabilities or from persisting through difficulties. Adolescents in these less competitive and selective environments during high school may take their education less seriously, and may therefore experience distress upon transitioning to higher education.

Second, one aspect of curricular position concerns exposure to Science, Technology, Engineering and Mathematics (STEM) curricula that are best-positioned for socioeconomic mobility and security in the modern economy. The foundation for exposure to STEM is set in high school with math and science coursework. The courses one takes in high school have important implications for later educational experiences (Schneider et al, 1997). Math sequences are also highly correlated with college

attendance (Adelman, 1999). Curricular position and exposure to STEM in high school, therefore, will better prepare an individual for college. In turn, research has shown STEM majors as a foundation of academic preparedness for college, academic anxiety in college, and economic security after college (Schneider & Keesler, 2007). Advanced math and science coursework in high school and STEM majors in college may prepare adolescents for the curricular demands of higher education. These high school and college level predictors, therefore, may contribute to distress (or lack thereof). Curricular pathway may indicate preparedness and capability. If so, having a strong curricular position in high school (as indicated by advanced math and science coursework) and transitioning to a strong curricular position in college (as indicated by declaration of a STEM major) may prevent individuals from experiencing distress during the transition from high school to college.

Whether discussing academic setting or curricular pathway, the experiences of young people in high school or college likely matter, independently, to their adjustment during the transition into college. Yet, life course theory suggests that continuity and change in experiences between high school and college matters—in other words, do they match up or not? Certainly, there is likely to be consistency across levels, with students from more competitive high schools often going into more selective colleges and the math/science pipeline flowing into STEM sectors of higher education (Berryman, 1983). To the extent that consistency of experience is less likely to represent a major disjuncture that requires adaptation, youth whose high school and college settings and positions match up will be less likely have problems adjusting to college than those whose settings

and positions do not match up. Match/mismatch matters above and beyond the pressures put forward by any one setting or position at any one time. For example, navigating a STEM major in a selective college may come with a great deal of expectation and stress for any student, but less so for students who came into this situation with advanced math/science credentials from a competitive high school. Thus, the match/mismatch between high school and college is a qualifier to the experience of college.

The second aim of this study, therefore, is to identify who is at risk for socioemotional distress during the transition based on their high school and college experiences and how the match (or mismatch) of academic setting and curricular position may prevent (or facilitate) distress.

Parental Support

Turning to the proximate ecological context, the family can offer support and resources that enable a student to deal with any pressures and stressors they face. When faced with risk, youth may draw on protections that buffer against that risk, so that two youth in the same basic situation may fare quite differently. This buffering could apply to socioemotional adjustment during the transition into college in general (i.e., a developmental trajectory in the life course) or more particularly to the role of match/mismatch in shaping adjustment during this transition (i.e., the interplay of a developmental trajectory and institutional pathway in the life course) (Steinberg et al, 1996). Social support from parents is likely to be one such buffer.

Social support from parents encompasses such factors as instrumental assistance, information about opportunities, expectations for behavior, and encouragement in

navigation of new arenas. Such support has been linked to a promotion of academic achievement and positive attitudes towards education—close relationship with parents are associated with better odds of educational advancement and persistence. Distant relationships with parents or relationships that are characterized by conflict, on the other hand, are associated with worse academic outcomes (Demo & Acock, 1996; Grotevant, 1998; Amato & Gilbreth, 1999; Call & Mortimer, 2001). Close relationships with parents facilitate an adolescent's successful adjustment not only in social arenas such as schools, but also in developmental arenas, such as identity formation (Crosnoe, 2004; Dornbusch, 1989). Evidence suggests that the ability of adolescents to deal with changes in their lives and adapt to new environments is associated with parental support (Simmons & Blythe 1987; Csikszentmihalyi & Schneider 2000).

As already discussed, the transition into college comes at a time of rapid change for adolescents and requires them to form an identity of their own (Johnson et al, 2011). For many, it means putting literal distance between themselves and their parents, not just figurative. Given that emotional support from parents helps youth overcome many obstacles and adapt to their environments no matter the challenges, adolescents are more likely to effectively navigate the transition into college when they have emotionally supportive parents, especially when that transition is particularly stressful.

The third aim of this study, therefore, is determine whether young people have better socioemotional adjustment during the transition into college—especially when high school and college experiences are divergent—when they have emotional support

from their parents. In the case of match/mismatch, moreover, does parental support act as a buffer against distress?

Current Study

In sum, the aims of this study are to (1) highlight variation in how adolescents experience the transition into college, (2) identify who is at risk for socioemotional distress during the transition, and (3) determine whether young people have better socioemotional adjustment during the transition when they have emotional support from their parents. I hypothesize that (1) despite college-goers faring better socioemotionally than others overall, not all college-goers will be able to navigate the transition to college without experiencing; (2) individuals most at risk for distress during the transition will be those who are mis-matched on high school and college academic setting and curricular pathways; and, (3) individuals who have emotional support from their parents will be more likely to have a smooth socioemotional transition from high school to college.

Method

Data and Sample

Add Health is a nationally representative survey that launched in 1994 with an in-school survey and followed adolescents into young adulthood through a series of four waves from 1995 to 2008 (Harris et al, 2009). The schools included in the study were selected by region, urbanicity, school size, school type, and racial composition based on a stratified sampling design. In-school data collection was done in 1994 when respondents were in grades 7–12. This in-school survey of 90,118 students in 132 middle and high schools and had a census-like structure for each school, which allows for the aggregation of data across all respondents in a school. The in-school survey was also used to generate a nationally representative subsample of 20,745 students. This group was selected for Wave I in-home interviews in 1995 and would be followed over the course of four waves. Wave II in-home interviews were conducted in 1996 and excluded participants who were Wave I high school seniors, resulting in a sample of 14,738 respondents. In-home interviews were also conducted in 2001-2002 and 2007-2008 for Wave III and Wave IV, respectively. Young adults were aged 24-32 at the time of the Wave IV interview. I used data from Waves I-III. Sampling weights from all waves were designed to address biases related to attrition, and these weights were used in all analyses.

Transcript data was also used in this study. As part of the companion Adolescent Health and Academic Achievement (AHAA) study, Wave III participants were asked to sign a transcript release form, providing researchers with access to their high school

transcripts. These waivers were signed by approximately 90% of survey respondents (Muller et al. 2007).

To address the study's primary aim of determining who is at risk for socioemotional distress during the transition to college, a sample was drawn including respondents who were in high school at Wave I, had enrolled in college, persisted through Waves I, II, and III, and had valid sampling weights. I excluded students who missed Wave II but came back into the study for Wave III. These filters resulted in a study sample of 4,468 adolescents.

Measures

Educational attainment. Specific categories of attainment were created based not only on highest degree earned, but also on highest degree attempted. Respondents were assigned one of the following eleven educational attainment categories: no high school, high school only, high school plus additional years without a degree, two year on time degree (defined as by age 25), two year degree later, two year degree plus additional years without another degree, four year degree early (defined as by age 25), four year degree later, two year degree then four year degree, four year degree plus additional years without another degree, and post-graduate degree. Categories were then broadened based on highest degree earned. These categories included no high school, high school, two-year college, and four-year college.

Emotional distress. Add Health included a modified CES-D scale in Waves I-IV (Pereira et al. 2005). Respondents were asked to report the frequency of their feelings in the past week. For an indicator of depressive symptomatology, nine items were asked at

each wave (e.g., "You felt that you could not shake off the blues, even with help from your family and your friends," "You felt sad," "You felt that people disliked you."). Responses ranged from 0 (never or rarely) to 3 (most of the time or all of the time). Items were coded to indicate greater symptomatology and used to generate a scale of depressive symptoms. Consequently, higher values indicated greater levels of distress. The scale was the sum of these nine items and ranged from 0 to 27 (average Cronbach's $\alpha = 0.69$).

Academic setting. For high school, academic setting was operationalized using a standardized composite variable ("school press") based on school mean GPA, mean math/science level, student expectation level, and percentage of seniors who go to college drawn from the In-school survey (Crosnoe et al, 2007). The range of this standardized variable is -1.365 to 1.475 and a respondent's value represents their school's Z-score on academic pressure.

Selectivity of the post-secondary institution was used to operationalize college academic setting. The range of the selectivity variable was 0 to 20 with lower scores identifying more selective institutions. This variable was constructed based on SAT scores of students entering these post-secondary institutions (Riegle-Crumb et al., 2008).

Categories were created to represent the match/mismatch of high school and college academic setting. Four categories captured match/mismatch of setting, which was operationalized as competitiveness and selectivity of the school. The school press variable was dichotomized to indicate high or low competitiveness for high school. Because this variable is a Z-score, a score of zero represents the mean. Any value greater

than or equal to zero was coded as high, and values less than zero were coded as low. Selectivity was also dichotomized as high or low for college academic setting. Schools with a score of 10 or above were coded as less selective (low) and schools with a score of less than 10 were coded as more selective (high). Then, respondents were categorized into one of four groups based on the match of their high school and college contexts. The four categories were high to high, high to low, low to high, and low to low. Low to low was the reference used in analyses.

Curricular position. For high school, math and science sequence were used to operationalize curricular position; data for these variables were drawn from the AHAA transcript data. First, respondents' math sequence ranged from 0 to 9 with values representing the following completed coursework: 0 = no math, 1 = basic or remedial, 2 = general, 3 = pre-algebra, 4 = algebra, 5 = geometry, 6 = algebra 2, 7 = advanced math, 8 = pre-calculus, and 9 = calculus. Second, for science sequence, values with a range of 1 to 6 represent: 0 = no science, 1 = remedial, 2 = general or earth science, 3 = biology, 4 = chemistry, 5 = advanced science, and 6 = physics.

For college curricular position, a binary STEM major variable was created. Respondent's self-reported college major was categorized as STEM or not STEM based on the STEM-designated degree program list maintained by the Department of Homeland Security's Immigration and Customs Enforcement (ICE).

Categories were created to capture match/mismatch of high school to college curricular position, operationalized through math/science proficiency and STEM major. In order to be classified as advanced in high school math/science, the respondent must

have completed at least Algebra 2 and Chemistry. For college, the dichotomous STEM variable was used. Respondents were then assigned one of four categories based on the match/mismatch of their high school and college educational pathways. The four categories were advanced to STEM, advanced to not STEM, not advanced to STEM, and not advanced to not STEM. Advanced to STEM was the reference used in analyses.

Parental support. Parental support was hypothesized to be associated with decreased risk of socioemotional distress and to buffer difficult transitions to college. In this study, parental support was operationalized as how close the respondent feels to his/her mother and father. In Wave I in-home interviews, respondents were asked to rate how close they feel to their mother/ adoptive mother/ step mother/ foster mother. Answers ranged from 1 for "not at all" to 5 for "very much". The same question was asked for closeness to father /adoptive father /step father /foster father.

Sociodemographic covariates. Analyses included a standard set of covariates. Adolescents reported their gender, age (at Wave I), race/ethnicity, family structure, and parent education. Race/ethnic categories for respondents included non-Hispanic white, non-Hispanic black, non-Hispanic Asian, Hispanic, and other/multi-racial. White was used as the reference group in all models. Family structure was operationalized using a binary variable for whether or not the respondent lives with both biological parents. Parent education was a categorical variable with values ranging from 1 to 5. The values represent the following educational attainment: 1 = less than high school, 2 = high school graduate, 3 = some higher education, 4 = college graduate, and 5 = post-college degree-earner.

School covariates. A series of variables were used to control for the respondent's academic experiences. First, an honors English variable was constructed based on the number of honors English courses a respondent took in high school (range: 0 to 6). Second, the respondents' cumulative high school GPA (on a 4.0 scale) was used. These variables were drawn from the AHAA transcript data. The average respondent in this sample took one honors English course and had a cumulative GPA of 2.88. Additional school level controls were drawn from the in-school survey and included a binary variable indicating the high school was private, the school size (in hundreds), the proportion of students with at least one college-going parent, the proportion of high school seniors enrolled in college preparatory classes, and the proportion of the high school students that identified as white. A dichotomous variable was created to indicate whether the college that the respondent attended was a private institution (versus public).

Descriptive statistics for emotional distress, academic setting, curricular position, parental support, and all covariates are presented in Table 1. Before reporting summary statistics, missing data was accounted for using multiple imputation; the Stata suite of *mi* commands were used to estimate missing data (StataCorp 2011).

Table 1. Descriptive statistics.

	% or *M(SE)*	*N*
Academic Setting		
School Press	0.059 (0.011)	4,468
College Selectivity	10.818 (0.142)	4,468
Curricular Position		
HS Math Sequence	6.849 (0.026)	4,468
HS Science Sequence	4.791 (0.018)	4,468
STEM Major	17.49%	781
Academic Setting		
High to High	26.01%	1,162
High to Low	21.64%	967
Low to High	17.96%	802
Low to Low	34.38%	1,536
Curricular Position		
Advanced to STEM	5.93%	265
Advanced to Not STEM	56.52%	2,525
Not Advanced to STEM	1.92%	86
Not Advanced to Not STEM	35.63%	1,592
Parental Support		
Closeness to Mom	4.593 (0.014)	4,468
Closeness to Dad	4.807 (0.022)	4,468
Sociodemographic Controls		
Age	15.972 (1.084)	4,468
Parent Ed	3.296 (0.019)	4,468
Two Parent Family	62.74%	2,803
Male	45.10%	2,015
Race		
Non-Hispanic White	51.97%	2,322
Hispanic	15.33%	685
Non-Hispanic Black	18.42%	823
Non-Hispanic Asian	9.38%	419
Other/Multi	4.90%	219

Table 1. Descriptive statistics, continued.

	% or *M(SE)*	*N*
School Covariates		
HS Honors English	0.921 (0.024)	4,468
HS Cumulative GPA	2.878 (0.011)	4,468
HS Private	10.72%	479
HS Size (hunds)	13.640 (0.133)	4,468
HS Prop College-Going Parent	42.17%	1,884
HS College Prep Seniors	59.565 (0.508)	4,468
HS Proportion White	50.42%	2,253
College Private	21.87%	977

Analytical Strategy

In order to capture variation in post-secondary transitions, latent growth curve modeling was utilized. The latent growth curve of depressive symptomatology employed the CES-D scales from Wave I (roughly 1995, when the average youth was 16 years old), Wave II (1996, when the average youth was 17), Wave III (2002, when the average youth was 22), and Wave IV (2008, when the average youth was 29). Latent growth curves were estimated for each level of educational attainment. The first latent factor, the intercept, refers to the starting point of the trajectory (i.e., average depressive symptoms in Wave I). The second latent factor, the slope, refers to the rate of change in the trajectory across waves. To define the slope as linear, the factor loadings for this latent factor would normally be set to 0, 1, 2, and 3. Due to the uneven spacing of the Add Health waves (e.g., the time between Waves I and II was shorter than that between Waves II and III), the factor loadings were set to 0, 1, 6, and 11. The third latent factor, a

quadratic, was also estimated to capture the "correction" in the slope, or the degree to which the rate of change increased or decreased across waves.

An unconditional growth curve of the four observed depression variables was estimated first. Second, a conditional model was estimated by adding sociodemographic control variables. Third, education was used to predict depression trajectory in a series of regression analyses. Models compared differences within each category (i.e., high school categories, two-year categories, and four-year categories) and across educational attainment levels (i.e., among high school, two-year college, and four-year college).

Analyses were performed in M*plus* (Muthén & Muthén, 1998-2008), a statistical software package that uses a full-information maximum likelihood (FIML) method to allow estimation of all cases regardless of missingness. *Mplus* has a cluster function to account for students nested in schools, and this function was used in the analyses. Appropriate longitudinal sample weights were included in all models to account for differential attrition and planned oversamples. Additionally, M*plus* generates fit indices to assess the association between the proposed model and the data, including a χ^2 significance test, the root mean square error of approximation (RMSEA: considered good at .05 or below), and a comparative fit index (CFI: considered good at .93 or above) (Byrne, 1994; Steiger, 1990).

To address the primary research question and determine who was at risk for socioemotional distress during the transition to college, the first step was to perform growth mixture modeling (GMM). GMM is a type of structural equation model estimated in M*plus* that allows for heterogeneity in a population. This statistical

technique is based on the theory that several categories of trajectories may occur within a population. Various criteria were used to determine the appropriate number of classes (categories of trajectories) in the sample. These include Bayesian information criterion (BIC) and sample size adjusted BIC (ABIC). A loglikelihood-based test was also used. GMM, therefore, was used to estimate latent growth curves of emotional distress among college-goers and to identify *k*-classes, with each class representing a unique category of trajectories (e.g., low increasing, stable, high decreasing).

Once classes were identified through GMM, multinominal logistic regression was used to predict class membership based on the match/mismatch of academic setting and curricular position. These analyses were performed in the statistical software package Stata (StataCorp 2011). Finally, to address the question regarding the impact of parental support, multinomial logistic regression was also used to predict odds of class membership based on closeness to mother and father. Interactions of parental support and academic setting/curricular position were also included to capture whether parental support would buffer risk for distress in the event of match/mismatch between high school and college settings and positions. Covariates were included in all models.

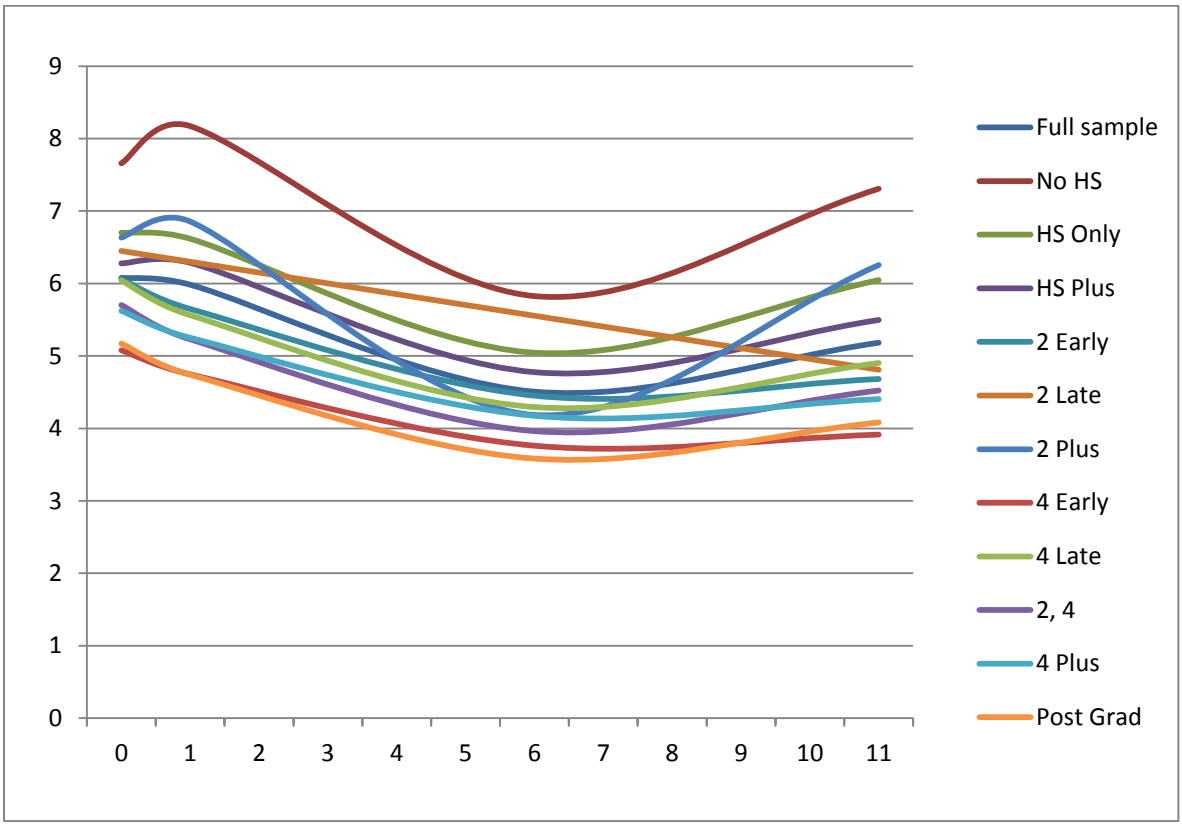
All respondents had data on educational attainment and depressive symptomatology. Missing values were accounted for using multiple imputation, which estimates missing values for a respondent based on simulated versions. The STATA suite of *mi* commands was used to estimate of the data that were missing (StataCorp 2011). Data was imputed five times and results were pooled into one estimate.

Results

In order to understand how socioemotional trajectories of college-goers are different from those of non-college-goers, latent growth curve analysis fit models of socioemotional trajectories by category of educational attainment. Separate unconditional models of depressive symptomatology were conducted by educational category, depicting a basic trajectory for adolescents as they transitioned into adulthood (see Figure 1). The models had good fits, with significant χ^2 values less than α=0.05. RMSEA values ranged from 0.00-0.069 and CFI values ranged from 0.930 to 1.000. In examining each trajectory independently, results suggest that the trajectories differ across educational attainment groups. First, high school drop-outs stood out as having high levels of depressive symptomatology both initially and over time. Second, respondents who graduated from high school but did not attend college appeared higher in depressive symptoms than most college-goers both initially and over time. Third, college-goers were low on depressive symptoms, with most experiencing a notable dip in symptoms during the transition to college. Results from the conditional model were consistent with the unconditional model results. Individuals who went to college had better trajectories of depressive symptomatology through the transition from adolescence to young adulthood. A regression analysis to predict depressive trajectory by educational attainment across high school drop-outs, high school graduates, two-year college goers and four-year college goers showed that college-goers were significantly different than other respondents. On average, individuals who went to college experienced depressive

symptoms to a lesser degree during the transition to adulthood than do high school drop-outs or high school graduates who do not advance to college. They were significantly different than non-college-goers in both the intercept and the slope of their depression trajectories. Despite these trends, however, there could still be diversity within the overall healthy group of individuals who go to college.

Figure 1. Unconditional growth curves for depressive symptomatology by educational attainment.



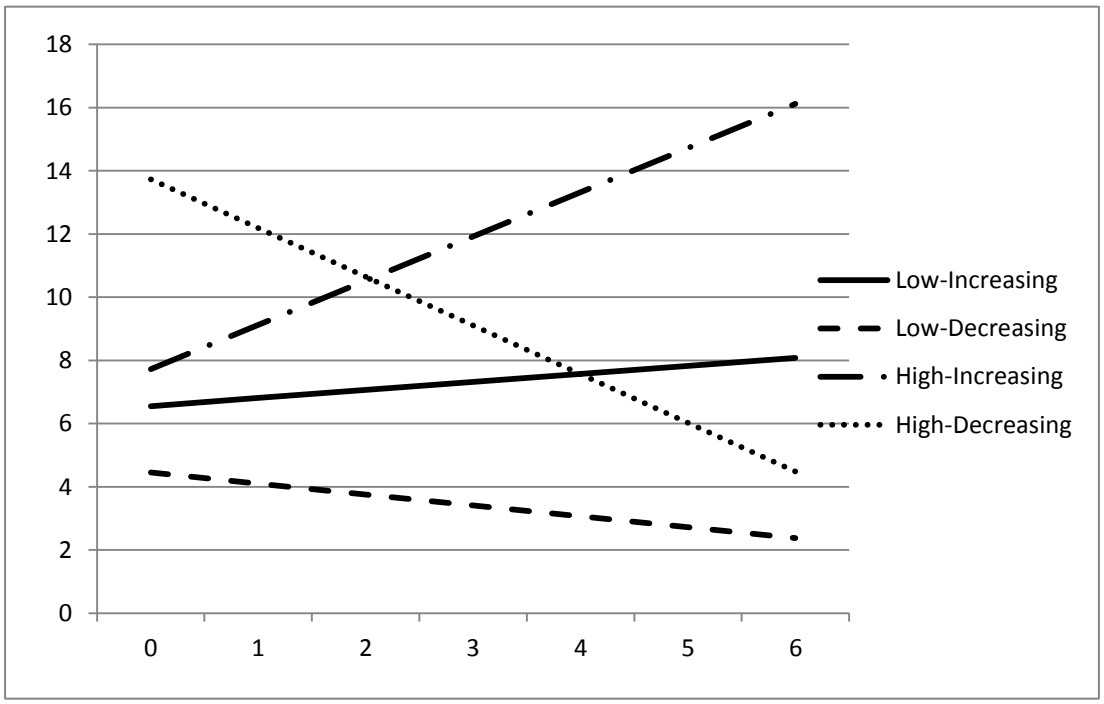
Diversity within the College-Going Population

The main goal of this study was to explore variation among college-goers. On average, they are doing well, but they are also likely to demonstrate some diversity in how they are doing. In attempting to elucidate such variation among college-goers, GMM identified four classes of socioemotional trajectories. Table 2 provides the criteria used to make this determination, and Figure 2 shows the trend lines of each of the four classes graphically.

Table 2. GMM criteria for class determination

	1 Class	2 Classes	3 Classes	4 Classes	5 Classes
Log-likelihood	-36024.102	-35520.757	-35271.334	-35088.191	-35019.651
# parameters	8	11	14	17	20
BIC	72115.443	71133.965	70660.335	70319.261	70207.396
ABIC (AIC)	72064.205	71063.514	70570.669	70210.381	70079.302
LRT *p*-value		0.0002	0.0087	0.0072	0.6188
Entropy		0.919	0.859	0.844	0.826
Distribution		7.09%, 92.91%	84.00%, 7.01%, 9.00%	2.89%, 16.81%, 74.51%, 5.80%	18.30%, 68.44%, 3.81%, 2.78%, 6.68%

Figure 2. Socioemotional trajectories.



The 18.8% of respondents who were grouped into Low-Increasing had a low level of depressive symptoms in high school and became slightly more depressed from high school through college. The majority of respondents (71.7%) were identified as belonging to Low-Decreasing, which was characterized by low level of depressive symptoms that decreased across high school and college. Low-Decreasing was the reference group for all models. High-Increasing (3.1%) respondents experience moderately low level of depressive symptoms in high school that increased over time. The 6.4% of college-goers in High-Decreasing started depressed in high school but improved greatly as they moved through high school and college.

An initial model to predict class membership included academic setting and curricular position with the full set of sociodemographic and school covariates (these results can be seen in Table 3). Overall, high school academic setting predicted lower odds of membership in the Low-Increasing class versus the low-decreasing class ($p < .01$). Specifically, individuals in more competitive high schools were less likely to have a Low-Increasing socioemotional trajectory as compared to a low-decreasing trajectory. Curricular position in high school predicted lower odds of a Low-Increasing ($p < .05$) or High-Decreasing ($p < .10$) trajectory. Math sequence, however, was only significant for Low-Increasing, and science sequence was only significant for High-Decreasing. In other words, having a more advanced math sequence decreased the likelihood of being in the Low-Increasing class versus being in the Low-Decreasing class. Having a more advanced science sequence decreased the likelihood of being in the High-Decreasing class versus being in the Low-Decreasing class. College setting and curricular variables were not significantly associated with class membership. In sum, academic setting and curricular position are not strong indicators of socioemotional trajectory independently, particularly those related to the college context. The match or mismatch between them must therefore be considered.

Table 3. The odds of membership in emotional distress trajectory by academic setting and curricular position.

	Low-Increasing OR (SE)		High-Increasing OR (SE)		High-Decreasing OR (SE)	
Academic Context						
School Press	0.645	**	0.994		1.020	
	(0.095)		(0.335)		(0.244)	
College Selectivity	0.996		1.012		1.008	
	(0.009)		(0.023)		(0.016)	
Curricular Pathways						
Math Sequence	0.935	†	0.928		1.014	
	(0.035)		(0.079)		(0.066)	
Science Sequence	0.961		0.882		0.837	*
	(0.045)		(0.106)		(0.067)	
STEM Major	1.004		0.826		0.839	
	(0.152)		(0.240)		(0.236)	
Sociodemographic Covariates						
Age	0.972		0.934		1.109	†
	(0.036)		(0.075)		(0.067)	
Parent Ed	0.882	**	0.918		1.045	
	(0.033)		(0.076)		(0.065)	
Intact Family	0.845	*	0.826		0.751	*
	(0.072)		(0.150)		(0.103)	
Male	0.877		0.457	***	0.463	***
	(0.071)		(0.088)		(0.067)	
Race						
NH Black	1.159		1.820	*	0.825	
	(0.144)		(0.460)		(0.179)	
Hispanic	1.167		1.118		1.066	
	(0.160)		(0.356)		(0.255)	
NH Asian	2.418	***	1.441		2.209	**
	(0.354)		(0.542)		(0.568)	
Other/Multi	1.362	†	2.090	*	0.976	
	(0.248)		(0.740)		(0.320)	

Table 3. The odds of membership in emotional distress trajectory by academic setting and curricular position, continued.

	Low-Increasing OR (SE)		High-Increasing OR (SE)		High-Decreasing OR (SE)	
School Covariates						
HS Honors English	1.010		0.997		1.048	
	(0.039)		(0.094)		(0.068)	
HS Cum. GPA	0.865	†	1.035		0.661	**
	(0.071)		(0.182)		(0.092)	
HS Private	0.891		1.249		0.585	
	(0.169)		(0.713)		(0.207)	
HS Size (hunds)	0.994		1.035	†	0.989	
	(0.008)		(0.019)		(0.015)	
HS Prop College Going Parent	1.486		0.948		0.432	
	(0.811)		(1.275)		(0.382)	
HS College Prep Sr.	1.006	*	1.004		1.003	
	(0.002)		(0.005)		(0.004)	
HS Prop White	1.023		1.316		0.869	
	(0.176)		(0.479)		(0.270)	
College Private	0.945		1.076		0.962	
	(0.144)		(0.283)		(0.313)	

Note: Comparison group is Low-Decreasing. †p < .10, *p < .05, **p < .01, ***p < .001

The Role of School Setting and Curricular Position over Time

Two models substituted academic setting and curricular position factors with categorical measures capturing match/mismatch between high school and college components of each (academic context and educational pathways). The analysis of academic context is presented in Table 4. Results showed that, when compared to individuals who attended less competitive high schools and transitioned into less selective colleges, individuals who transitioned from competitive high schools to

selective colleges are significantly less likely to belong to the Low-Increasing, High-Increasing, or High-Decreasing socioemotional trajectory classes versus the Low-Decreasing trajectory. Enrollment in a competitive high school and selective college, therefore, reduces an individual's risk of socioemotional distress during the transition to college. On the other hand, less competitive and selective settings for both high school and college increase risk of depressive symptomatology. A mismatch in academic setting (i.e., crossing from a less competitive high school to more selective college or from a more competitive high school to a less selective college) did not differentiate class membership.

Table 4. The odds of membership in emotional distress trajectory by match/mismatch of high school and college setting.

	Low-Increasing OR (SE)		High-Increasing OR (SE)		High-Decreasing OR (SE)	
High to High	0.753	*	0.753		0.540	*
	(0.085)		(0.208)		(0.133)	
High to Low	0.843		0.972		0.930	
	(0.103)		(0.282)		(0.189)	
Low to High	0.937		0.896		0.876	
	(0.118)		(0.319)		(0.202)	
Controls						
Age	0.984		0.953		1.133	*
	(0.036)		(0.076)		(0.068)	
Parent Ed	0.856	***	0.913		0.980	
	(0.029)		(0.071)		(0.057)	
Two Parent Family	0.800	**	0.780		0.690	**
	(0.066)		(0.140)		(0.094)	
Male	0.916		0.462	***	0.502	***
	(0.072)		(0.087)		(0.070)	
Race						
NH Black	1.193		1.765	*	0.925	
	(0.130)		(0.388)		(0.170)	
Hispanic	1.200		1.323		1.082	
	(0.140)		(0.345)		(0.210)	
NH Asian	2.194	***	1.401		1.979	**
	(0.280)		(0.475)		(0.412)	
Other/Multi	1.421	*	2.126	*	1.057	
	(0.252)		(0.728)		(0.335)	

Note: Comparison group is Low-Decreasing for trajectory and Low to Low for academic setting. †p < .10, *p < .05, **p < .01, ***p < .001

Results for the analysis of curricular position can be seen in Table 5. The individuals most at risk for socioemotional distress were those not advanced in science and math during high school who did not declare a STEM major in college. In other

words, individuals who transitioned from lower math and science sequences and declared majors that are not STEM were most at risk for distress. The least risk for distress, on the other hand, was seen among respondents who placed in advanced science and math classes during high school and declared a STEM major in college. Crossing pathways (i.e., from advanced to not STEM or from not advanced to STEM) was not significantly associated with odds of class membership in the Low-Increasing, High-Increasing, and High-Decreasing classes versus the Low-Decreasing class.

Table 5. The odds of membership in emotional distress trajectory by match/mismatch of high school and college curricular position.

	Low-Increasing OR (SE)		High-Increasing OR (SE)		High-Decreasing OR (SE)	
Advanced to Not STEM	0.958		5.291	†	1.634	
	(0.171)		(5.243)		(0.650)	
Not Advanced to STEM	1.122		8.415	†	1.373	
	(0.409)		(10.219)		(0.967)	
Not Advanced to Not STEM	1.355	†	7.750	*	2.201	†
	(0.245)		(7.652)		(0.879)	
Controls						
Age	0.979		0.948		1.137	*
	(0.035)		(0.076)		(0.068)	
Parent Ed	0.852	***	0.916		0.961	
	(0.029)		(0.069)		(0.054)	
Two Parent Family	0.819	*	0.811		0.702	**
	(0.068)		(0.146)		(0.096)	
Male	0.907		0.467	***	0.509	***
	(0.072)		(0.088)		(0.071)	
NH Black	1.208	†	1.774	**	0.976	
	(0.131)		(0.385)		(0.178)	
Hispanic	1.226	†	1.310		1.138	
	(0.140)		(0.338)		(0.218)	
NH Asian	2.283	***	1.470		2.086	***
	(0.291)		(0.498)		(0.430)	
Other/Multi	1.416	†	2.072	*	1.072	
	(0.251)		(0.710)		(0.340)	

Note: Comparison group is Low-Decreasing for trajectory and Advanced to STEM for curricular pathway. †p < .10, *p < .05, **p < .01, ***p < .001

In sum, experiencing a mismatch of academic setting and curricular position were not associated with class membership. A match, however, did predict socioemotional trajectory. A match of competitive to selective setting and a match of advanced math and science sequence to STEM major were predictive of lower odds of distress during the transition to college.

Parental Support

To test whether parental support might be associated with less difficult transitions to college, the respondent's feelings of closeness to each parent were used to predict socioemotional trajectory class membership. Results can be seen in Table 6. Respondents who felt close to their mothers were less likely to be in Low-Increasing, High-Increasing, or High-Decreasing class versus the Low-Decreasing class. They were more likely, therefore, to leave high school with few depressive symptoms and maintain a low level of distress throughout their transition to college. These results also held true for the respondent's feelings of closeness to their fathers. Respondents who felt close to their father had lower odds of being in trajectories characterized by greater socioemotional distress across high school and college.

Table 6. The odds of membership in emotional distress trajectory by parental support.

	Low-Increasing OR (SE)		High- Increasing OR (SE)		High-Decreasing OR (SE)	
Close to Mom	0.865	*	0.801	†	0.680	***
	(0.050)		(0.092)		(0.058)	
Close to Dad	0.873	**	0.736	**	0.682	***
	(0.043)		(0.077)		(0.055)	
Controls						
Age	0.987		0.948		1.135	*
	(0.036)		(0.076)		(0.070)	
Parent Ed	0.833	***	0.874	†	0.923	
	(0.027)		(0.063)		(0.052)	
Two Parent Family	0.818	*	0.819		0.745	*
	(0.068)		(0.147)		(0.103)	
Male	0.976		0.535	**	0.618	**
	(0.078)		(0.103)		(0.088)	
Race						
NH Black	1.254	*	1.822	**	0.987	
	(0.136)		(0.395)		(0.183)	
Hispanic	1.284	*	1.352		1.172	
	(0.147)		(0.348)		(0.228)	
NH Asian	2.180	***	1.336		1.857	**
	(0.278)		(0.453)		(0.390)	
Other/Multi	1.440	*	2.082	*	1.075	
	(0.256)		(0.717)		(0.345)	

Note: Comparison group is Low-Decreasing. †p < .10, *p < .05, **p < .01, ***p < .001

A series of interaction effects were tested to determine whether parental support matters more when respondents experience a match/mismatch of academic context and/or educational pathways. The analyses were modeled in a stepwise manner and the results can be seen in Table 7. No significant interaction effects were found ($\alpha < .05$).

Table 7. The odds of membership in emotional distress trajectory by parental support and match/mismatch of academic setting and curricular pathways.

	Low-Increasing OR (SE)		High-Increasing OR(SE)		High-Decreasing OR (SE)	
Parental Support						
Close to Mom	0.853		0.835		0.673	*
	(0.101)		(0.210)		(0.116)	
Close to Dad	0.745	**	0.592	*	0.679	*
	(0.083)		(0.136)		(0.111)	
Academic Setting						
High to High	0.741		0.898		0.721	
	(0.179)		(0.464)		(0.316)	
High to Low	0.881		0.976		1.108	
	(0.255)		(0.417)		(0.377)	
Low to High	0.924		0.928		0.904	
	(0.182)		(0.509)		(0.302)	
Curricular Position						
Advanced to Not STEM	1.035		4.175		1.921	
	(0.228)		(4.321)		(0.992)	
Not Advanced to STEM	0.436		1.481		0.643	
	(0.313)		(2.418)		(0.841)	
Not Advanced to Not STEM	0.427		1.731		1.904	
	(0.258)		(2.535)		(1.680)	
Interactions						
Close to Mom * HighHigh	1.065		0.456	†	1.035	
	(0.189)		(0.194)		(0.308)	
Close to Mom * HighLow	0.981		1.072		1.120	
	(0.107)		(0.209)		(0.169)	
Close to Mom * LowHigh	0.871		0.699		0.841	
	(0.238)		(0.354)		(0.375)	
Close to Dad * HighHigh	0.951		2.202	†	0.788	
	(0.178)		(0.926)		(0.260)	

Table 7. The odds of membership in emotional distress trajectory by parental support and match/mismatch of academic setting and curricular pathways, continued.

	Low-Increasing OR (SE)		High-Increasing OR(SE)		High-Decreasing OR (SE)	
Close to Dad * HighLow	1.050		0.932		0.850	
	(0.119)		(0.200)		(0.140)	
Close to Dad * LowHigh	1.220		1.720		1.141	
	(0.353)		(0.948)		(0.566)	
Close to Mom * AdvNotSTEM	0.800		1.165		1.366	
	(0.115)		(0.295)		(0.264)	
Close to Mom * NotAdvSTEM	1.217		1.243		1.055	
	(0.187)		(0.379)		(0.227)	
Close to Mom * NotAdvNotSTEM	1.120		0.686		0.752	
	(0.232)		(0.333)		(0.233)	
Close to Dad * AdvNotSTEM	1.247		0.939		0.670	†
	(0.190)		(0.265)		(0.149)	
Close to Dad * NotAdvSTEM	1.067		1.177		0.969	
	(0.138)		(0.296)		(0.185)	
Close to Dad * NotAdvNotSTEM	1.170		1.897		1.320	
	(0.228)		(0.905)		(0.404)	
Controls						
Age	1.038		0.937		1.150	†
	(0.048)		(0.096)		(0.091)	
Parent Ed	0.870	**	0.883		1.014	
	(0.037)		(0.085)		(0.075)	
Two Parent Family	1.102		0.802		0.900	
	(0.147)		(0.208)		(0.186)	
Male	0.943		0.476	**	0.515	***
	(0.091)		(0.113)		(0.092)	

Table 7. The odds of membership in emotional distress trajectory by parental support and match/mismatch of academic setting and curricular pathways, continued.

	Low-Increasing OR (SE)		High-Increasing OR(SE)		High-Decreasing OR (SE)	
Race						
NH Black	0.861		1.786	*	0.880	
	(0.134)		(0.488)		(0.218)	
Hispanic	1.184		1.266		1.005	
	(0.165)		(0.384)		(0.249)	
NH Asian	1.961	***	1.577		2.266	***
	(0.284)		(0.579)		(0.524)	
Other/Multi	1.637	*	1.265		1.113	
	(0.332)		(0.623)		(0.417)	

Note: Comparison group is Low-Decreasing for trajectory, Low to Low for academic setting, and Advanced to STEM for curricular pathway. †p < .10, *p < .05, **p < .01, ***p < .001

When a series of individual and school covariates were controlled for, the effect of closeness persisted. Parental support, therefore, is important independently for socioemotional trajectory; but, it does not buffer the impact of a match/mismatch on academic setting and curricular position.

In sum, parental support is an important predictor of socioemotional trajectory, and the greater the support an individual has from his or her parents, the less likely they are to experience distress during the transition to college. Parental support does not, however, act as a buffer in the case of academic setting or curricular position match/mismatch.

Discussion

The pool of American youth transitioning from high school to college has expanded, and more adolescents than ever are not only expecting, but also attempting to earn a college degree. Socioemotional distress faced during the transition, however, may jeopardize an individual's ability to persist through college to graduation. This research, therefore, aimed to shed a more comprehensive light on how socioemotional trajectories shape this important transition experience.

In short, understanding how adolescents experience the transition to college through an examination of socioemotional trajectories highlights variation among adolescents during the transition, especially based on educational attainment. The more highly educated an individual, the better their socioemotional trajectory on average. Even among those who advance to higher education, however, heterogeneity in socioemotional distress can be seen. For most, going to college has positive implications for socioemotional well-being; but, not all adolescents who transition into college will experience these benefits. Individuals most at risk for increasing socioemotional distress across high school and college are those who move from low demand high schools to low demand colleges. A transition from a highly competitive high school with advanced math and science sequence to a highly selective college with a declared STEM major, on the other hand, is protective against distress. In predicting which individuals are most at risk for distress during the transition, parental support was also seen to be protective against depressive symptoms. These patterns raise important questions, including: (1)

why is academic and curricular match more important than mismatch in predicting socioemotional distress during the transition to college? (2) is there a self-selection among college-goers? and (3) through what mechanisms does parental support decrease odds of socioemotional distress during the transition to college?

First, the results of these analyses did not find support for the hypothesis that a mismatch of high school and college experiences would be associated with a more difficult transition. Instead, a match of a less competitive high school to a less selective college academic setting was most predictive of a distressed socioemotional trajectory. This finding suggests that a change in academic setting during the transition to college is not necessarily problematic. Instead, consistent exposure to reduced academic pressure is most predictive of distress, but exposure to rigorous academic contexts in high school is associated with decreased odds of distress. Students enrolled in more competitive and selective contexts may be more capable of handling the transition to higher education due to educational skills stressed in these settings. A match of advanced math and science in high school with a declaration of STEM major in college was also associated with lower odds of distress. A mismatch of curricular position, on the other hand, was not associated with increased odds of distress. Increased expectations of student performance and high requirements for math and science coursework may therefore be examples of indirect pathways that support persistence during the transition to college. These results suggest that further research should be done to better understand how lower academic competitiveness and selectivity impact socioemotional trajectory and how this relation might be associated with inability to persist through higher educational contexts. This

study examined the match/mismatch of academic setting and curricular position among all college-goers; a next step should be to focus on drop-outs more specifically in order to shed light on how reduced competitiveness and selectivity in academic settings might be associated with distress and persistence.

Second, socioemotional trajectories of college-goers stand out as better than trajectories of individuals who drop out of high school and trajectories of individuals who do not continue to higher education. On average, significant differences persist across these groups. However, when predicting heterogeneity among the trajectories of college-goers, high school academic setting and curricular position variables were not strong in determining who is at risk for socioemotional distress. Perhaps going to college, therefore, is less about the academic setting and skillset from which one comes, and is more about the relationships and support that individuals have to deal with an important life course transition. It is possible that self-selection is occurring. In other words, individuals who are better suited for socioemotional coping may be more likely to go to college and also more likely to experience a smooth transition. The models presented in this research do not account for this potential bias. Future research should be done to better inform these questions.

Third, the importance of parental support in predicting socioemotional trajectory suggests that positive social relationships are beneficial during transitions for college-goers. Support from individuals' mother and father decreases risk for distress among college-goers. The mechanisms of this association, however, remain unclear. Does having a close parental relationship support positive socioemotional well-being directly

or does this association operate through the confidence and self-worth that these relationships provide? Not only should these mechanisms be better understood, but the conceptualization of social support should be broadened beyond parental. For example, do peer networks, participation in extracurricular activities, and/or community involvement also buffer socioemotional distress in the transition to college? In the absence of positive parental relationships, do other social supports effectively provide adolescents with the same protection against distress? And if so, how? Parental support, moreover, did not buffer risk factors in the context of a match between low academic settings and curricular positions in high school and college. Other sources of social support, therefore, should be investigated as potential buffers in order to understand how at-risk college-goers may be able to avoid distress.

Earning a college degree has lifelong social and economic returns. More adolescents than ever are enrolling in college; however, not all are able to persist through college to earn the degree. Several adolescents, therefore, are not able to realize the benefits of college, despite their attempt at college-going. Likely, the time of transitioning from high school to college is crucial in determining who will be able to navigate the change in institutional and ecological setting. The transition from high school to college is a dynamic and critical period for adolescents that must be better understood in terms of socioemotional outcomes. Increased risk of socioemotional distress may prevent successful navigation of college-going, and inability to make a successful transition may result in diminished economic and social returns that extend beyond this transition, persisting over the life course. Ultimately, this research supports

the idea that heterogeneity exists in how college-goers fare socioemotionally. Increased risk for distress during the transition from high school to college is associated with consistently less competitive academic settings, lower levels of math/science coursework in high school and college, and lack of parental support.

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